Owner's Guide

CASCADE® HANDPIECE DELIVERY SYSTEM

a-dec®

85.2639.00

Warranty Information

Serial Number _____

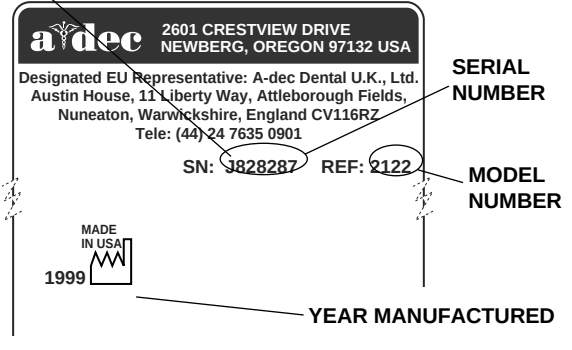
Model Number _____

Date Purchased _____

Date of Service	Model/Description of Service	Technician's Initials

ALPHABETICAL EQUIVALENT TO THE NUMERAL OF THE MONTH MANUFACTURED

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
J	October
K	November
L	December



Serial Number Identification

Serial Number Location:

- Located on the underside of the control head.

For service information contact your authorized A-dec dealer.

Check with local codes and A.D.A. (Americans with Disabilities Act) requirements for installation of this product.

A-dec warrants its products and A-dec/W&H Synea handpieces against defects in material or workmanship for one year from time of delivery. All other handpiece instrumentation has a warranty period of six months. A-dec's sole obligation under the warranty is to provide parts for the repair, or at its option, to provide the replacement product (excluding labor). The buyer shall have no other remedy. (All special, incidental, and coincidental damages are excluded.) Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse.The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes. The warranty also does not cover light bulbs. Failure to follow instructions provided in A-dec's Operation and Maintenance Instructions (Owner's Guide) may void the warranty.

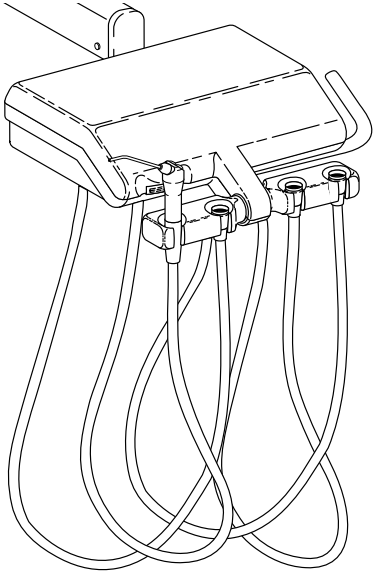
NO OTHER WARRANTIES AS TO
MERCHANTABILITY OR OTHERWISE ARE MADE.

a-dec

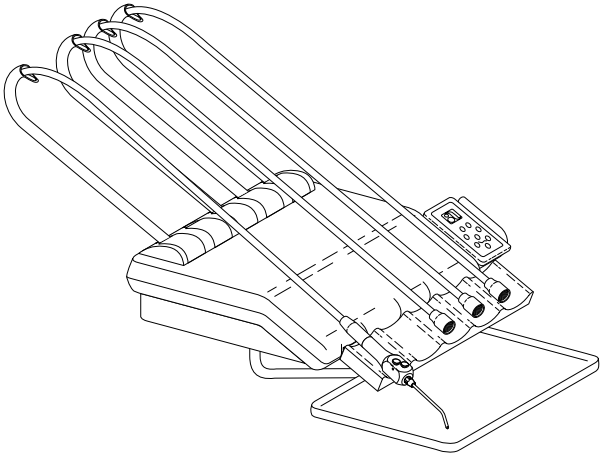
All product names used in this document are trademarks or registered trademarks of their respective holders.

Printed in U.S.A. • Copyright © 1999 • All Rights Reserved

This Owner's Guide includes both styles of Cascade Handpiece Delivery System, Continental and Traditional. Uses and adjustments are the same for both, except where noted.



Cascade Handpiece Delivery System
(Traditional-style Control Head with Unitized Holders)



Cascade Handpiece Delivery System
(Continental®-style Control Head
with touch pad and push button arm brake)

Serial number location, service information, and warranty information are located on the inside front cover and front page.

CONTENTS

Cascade Handpiece Delivery System 2
Handpiece Actuation 2
Drive Air Pressure Gauge 2
Arm Brake *(Chair-Mounted Delivery Systems Only)* 3
Foot Control 3
Handpiece Controls 4
- Master On/Off Toggle 4
- Drive Air Pressure Controls 5
- Coolant Air Flow Control 6
- Coolant Water Flow Controls 7
- Handpiece Tubing Flush 8

Handpiece Dry Block Conversion 9
Oil Collector 10
Continental-Style Control Head
- Handpiece Whip Adjustment 10

Traditional-Style Control Head
- Holder Adjustments 11

Touch Pad *(Optional)* 11
Tray Holder *(Optional)* 12
- Tray Holder/Tray Arm Tension Adjustment 13

Autoclavable Syringe 14
System Air And Water
- Pressure Adjustment 14

Care Instructions 14
Flexible Arm 15
- Counterbalance Spring Adjustment 15
- Arm Stop Adjustment for Left/Right Conversion 18

Continental-Style Control Positioning 19
- Trans-Thorax Positioning 19

Maintenance 20
Adjustments and Specifications 20
Identification of Symbols 22
Classification of Equipment (EN 60601-1) ... 22

Products List Print

Cascade Handpiece Delivery System

Your Cascade Handpiece Delivery System is built around A-dec's proven Century Plus® control blocks for three handpieces and, in most instances, A-dec's Autoclavable Syringe.

Handpiece Actuation

Handpiece actuation is automatic. When you lift a handpiece from its holder, or pull the Continental-style whip forward, the handpiece becomes active and will run when you press on the foot control disc *(refer to page 3)*. Return the handpiece to its resting position to deactivate it.

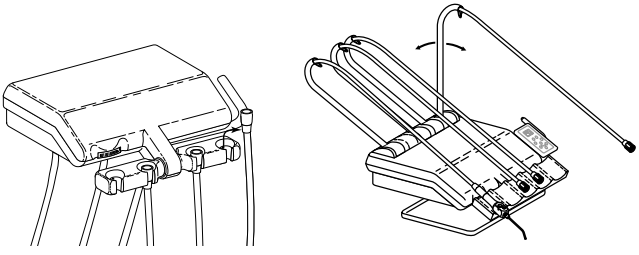


Figure 1. Handpiece Actuation

Drive Air Pressure Gauge

The drive air pressure gauge *(see Figure 2)* indicates, in psi and kg/cm2, the drive air pressure to the active handpiece.

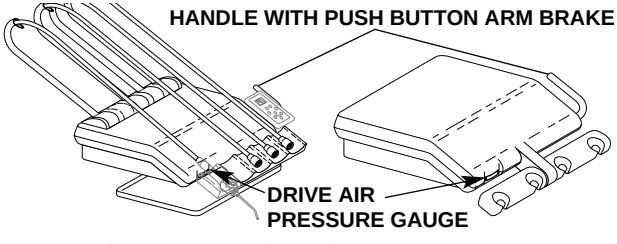


Figure 2. Drive Air Pressure Gauge

Products List | Print | Table of Contents

Arm Brake

(Chair-Mounted Delivery Systems Only)

The arm is braked against vertical movement until you press the arm brake button *(see Figure 2 on page 2)*. You then are able to position the control head. Releasing the arm brake button locks the control head in place

Foot Control

The foot control modulates drive air to the active handpiece and provides an air signal that activates the coolant air and coolant water flow. The foot control is operated by light foot pressure applied to any part of the foot control disc.

The foot control is equipped with a wet/dry toggle and can be equipped with an optional chip blower button *(see Figure 3)*.

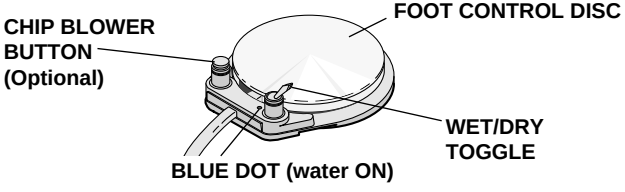


Figure 3. Foot Control

Wet/Dry Toggle. Allows you to shut off the coolant water to the handpiece without moving your hands from the oral cavity. Using your foot, move the toggle away from the blue dot to turn the coolant water OFF. Move the toggle toward the blue dot to turn the coolant water ON.

Chip Blower Button. Sends a jet of air through the handpiece when it is not running.

Handpiece Controls

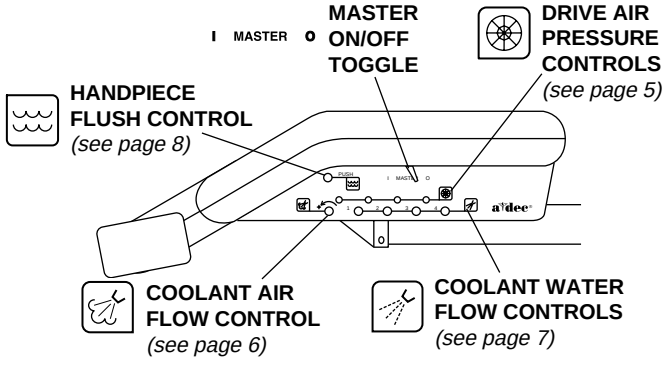


Figure 4. Handpiece Controls

Adjustment keys are provided for making adjustments to the recessed controls. You can order additional or replacement keys from your authorized A-dec dealer or use a 1/8" hex key.

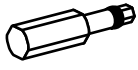


Figure 5. Autoclavable Adjustment Key

Master On/Off Toggle

I MASTER O The **master on/off toggle** *(see Figure 4)* turns air, water, and electricity on or off to the system.

CAUTION

The MASTER ON/OFF TOGGLE should be in the OFF (0) position whenever the unit is not in use.

This will prevent the possibility of water damage should a leak occur while the unit is unattended.

Making sure the unit is off will also prevent the possibility of self-activation and the resulting burn-out of your electrical accessories.

Products List | Print | Table of Contents

Drive Air Pressure Controls

The drive air pressure controls *(see Figure 4 on page 4)* are used to adjust the drive air pressure to each handpiece.

Adjust the drive air pressure to meet the handpiece manufacturer's dynamic drive air pressure specification. *Refer to the documentation that came with your handpiece for the dynamic drive air pressure specification.*

You will need a 3⁄32" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the drive air gauge on the front of the control head *(see Figure 2 on page 2)*.
3. Move the wet/dry toggle on the foot control *(see Figure 3 on page 3)* to the OFF position, *away from the blue dot)*.
4. Turn the drive air control clockwise until the valve seats.
5. Fully depress the foot control disc.
6. While running the handpiece, watch the drive air gauge and adjust the handpiece dynamic drive air pressure to meet manufacturer's specifications.
   - Turn the drive air control counterclockwise to increase drive air pressure flow.
   - Turn the control clockwise to decrease flow.

NOTE

Do not turn the control counterclockwise beyond the point where the drive air pressure no longer increases. The control adjustment screw may come completely out of the unit.

7. Repeat steps 1 through 6 for ***EACH*** handpiece.

Coolant Air Flow Control

The coolant air flow control is used to adjust the coolant air flow to **all** handpieces *(see Figure 6)*.

You will need an adjustment key (see Figure 6) or a 1⁄8" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the coolant air control *(see Figure 6)*.
3. Move the wet/dry toggle on the foot control *(see Figure 3 on page 3)* to the OFF position, *away from the blue dot*.
4. Insert an adjustment key, or a 1⁄8" hex key, into the coolant air flow control.
5. Fully depress the foot control disc to activate the handpiece.
6. Adjust the coolant air flow to fit your needs. A strong flow of air is recommended.
   - Turn the control clockwise to decrease the flow.
   - Turn counterclockwise to increase the flow.
7. The coolant air has been set for **ALL** handpieces.

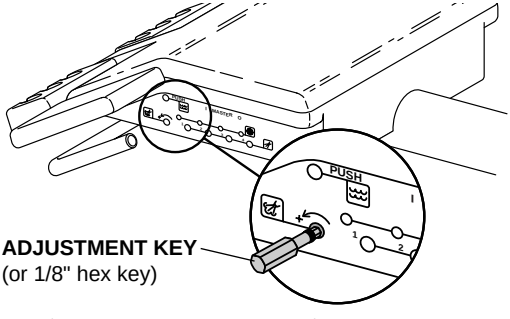


Figure 6. Coolant Air Flow Control

Products List | Print | Table of Contents

Coolant Water Flow Controls

The coolant water flow controls are used to adjust the flow of coolant water to **each** handpiece *(see Figure 7)*.

You will need an adjustment key (see Figure 7) or a 1⁄8" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the coolant water flow controls *(see Figure 7)*.
3. Move the wet/dry toggle on the foot control *(see Figure 3 on page 3)* to the ON position, *toward from the blue dot*.
4. Insert an adjustment key, or a 1⁄8" hex key, into the coolant water flow control for the handpiece being adjusted.
5. Fully depress the foot control disc to activate the handpiece.
6. Adjust the coolant water flow to fit your needs.
   - Turn the control clockwise to decrease the flow.
   - Turn counterclockwise to increase the flow.
7. Repeat steps 1 through 6 for **EACH** handpiece.

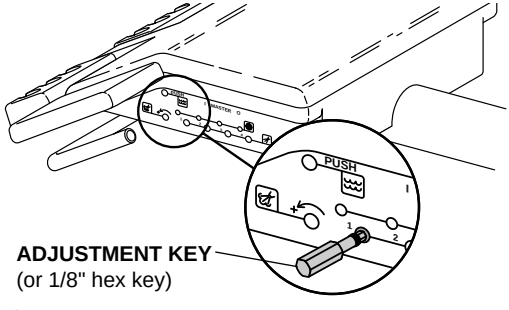


Figure 7. Coolant Water Flow Control

Handpiece Tubing Flush

The handpiece tubing flush system flushes more water through the tubings in less time than is normally possible when operating the foot control only. The handpieces should not be connected when flushing the tubings.

How Often Should the Handpiece Tubings be Flushed?

After Each Patient:
Flush the tubings for about 20-30 seconds.

At the Beginning of Each Day:
Flush the tubings for 2-3 minutes.

Flushing the Handpiece Tubings

Gather up all the handpiece tubings that use coolant water and hold them over a sink, cuspidor bowl or basin. Be sure you hold the tubings so that the water will be directed away from you and into the receptacle *(see Figure 8)*.

Insert an adjustment key or 1/8" hex key into the handpiece tubing flush control on the side of the control head. Push in and hold the key for the appropriate time required, either for flushing between patients or flushing at the beginning of each day, depending on the situation. Remove the key and replace the tubings in their holders.

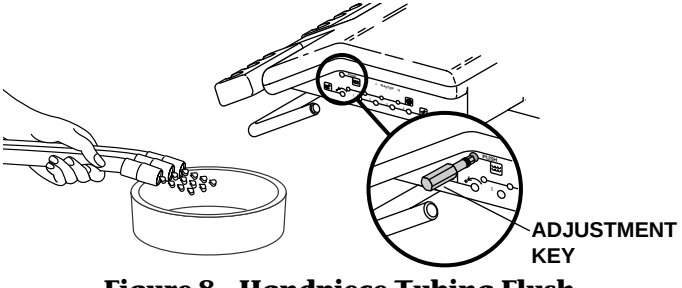


Figure 8. Handpiece Tubing Flush

Products List | Print | Table of Contents

Handpiece Dry Block Conversion

Your handpiece delivery system has three to four handpiece control blocks with coolant water to the handpiece. In some cases a control block without coolant water, a dry block, is required. If you require a dry block (offering no water to the handpiece) on your handpiece control system, a dry block conversion kit has been included with your system.

Installing the Dry Block Conversion Kit

1. Move the master on/off toggle to the OFF position. Bleed the system water by operating the syringe and flushing the handpiece tubings.
2. Locate the handpiece control block position that will be the dry block. Access the control blocks underneath the control head.
3. Use a 3/32" hex key to remove the large red cartridge from the control block. Install the large black cartridge from the dry block conversion kit into the control block *(see Figure 9)*.
4. Use a 3/32" hex key to remove the small blue cartridge from the same control block. Install the small black cartridge from the dry block conversion kit into the control block.
5. Turn your handpiece control system on, then check the function of the dry block handpiece conversion. A small amount of residual water may be discharged from the handpiece tubing but should dry after a few seconds.

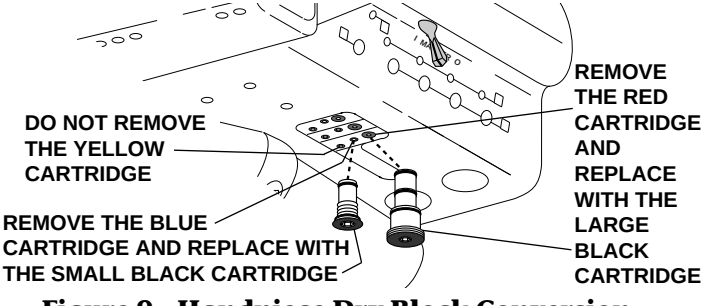

DO NOT REMOVE THE YELLOW CARTRIDGE
REMOVE THE BLUE CARTRIDGE AND REPLACE WITH THE SMALL BLACK CARTRIDGE
REMOVE THE RED CARTRIDGE AND REPLACE WITH THE LARGE BLACK CARTRIDGE

Figure 9. Handpiece Dry Block Conversion

Oil Collector

The oil collector on your unit needs to be cleaned once a week for normal usage. Clean more often for heavier use.

1. Remove the oil collector jar from the unit and discard the old gauze *(see Figure 10)*.
2. Fold a new two-inch square gauze pad into quarters and place it against the spring inside the jar.
3. Screw the oil collector jar onto the unit. Do not overtighten.

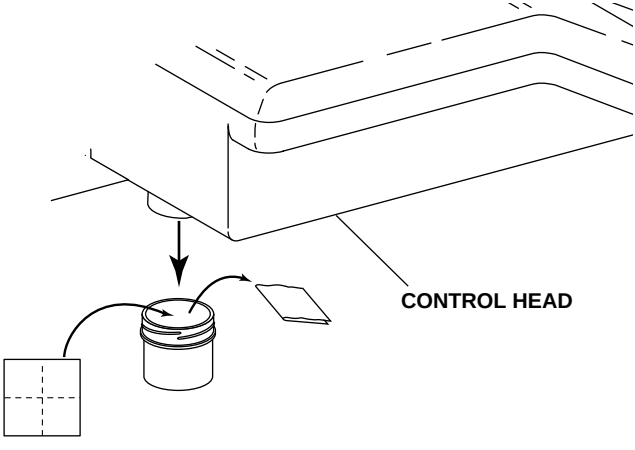


Figure 10. Oil Collector

Continental-Style Control Head Handpiece Whip Adjustment

If your handpiece fails to acuate when the whip is pulled forward or it does not stop when the whip is in its resting position, the whip will have to be re-aligned. Contact your authorized A-dec Dealer to have the whip assembly aligned.

Traditional-Style Control Head Holder Adjustments

The holder tension was set at the factory. However; if a holder is difficult to reposition or repositions too easily, the holder tension can be adjusted.

To adjust the holder tension:

- Loosen or tighten the tension adjustment screw shown in Figures 11.

To reposition a holder:

- Rotate the holder to the desired angle.

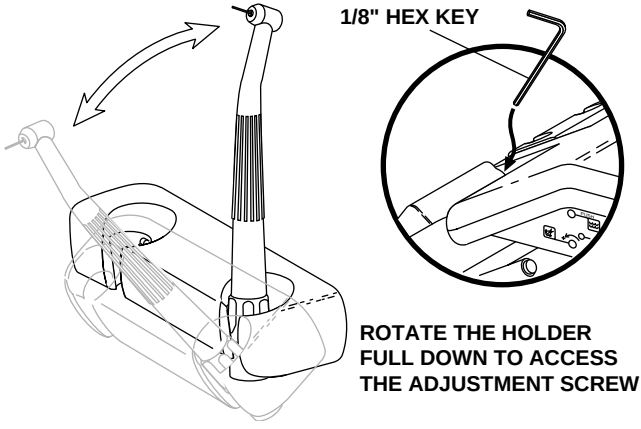


Figure 11. Unitized Handpiece Holder

Touch Pad (Optional)

For chair touch pad instructions, refer to the ***Cascade 1040 Chair Owner's Guide*** *(A-dec Publication No. 85.2605.00)* or ***Decade 1011/1021 Chair Owner's Guide*** *(A-dec Publication No. 85.2635.00)* depending on your model of chair.

For Master touch pad instruction, refer to your ***Master Touch Pad Owner's Guide*** *(A-dec Publication No, 85.2627.00).*

Tray Holder (Optional)

(not available on all handpiece delivery systems)

For maximum flexibility in tray positioning, the optional tray holder can be rotated a full 360°, and the tray arm can be pivoted to either side.The tray holder should be adjusted so that it rotates easily, yet maintains its position while instruments are removed and replaced.

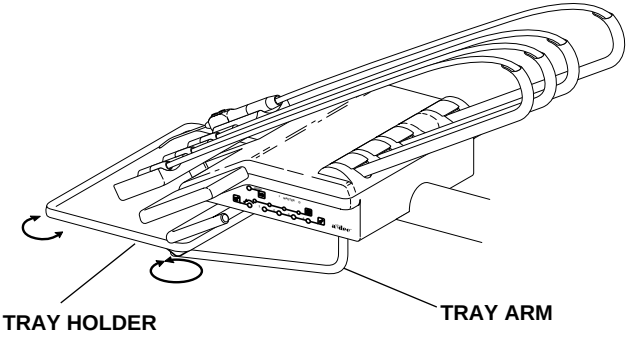


Figure 12. Tray Holder (Continental-Style)

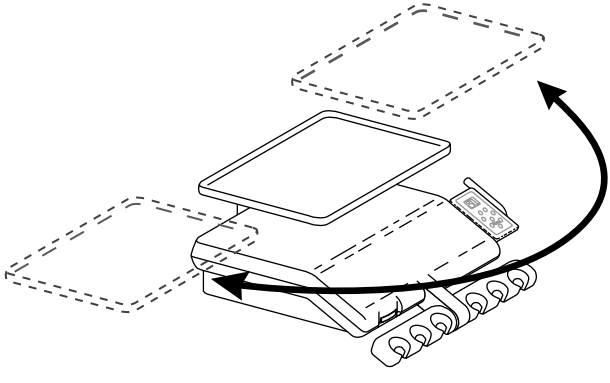


Figure 13. Tray Holder (Traditional-Style)

Tray Holder/Tray Arm Tension Adjustment

To adjust the tray holder or tray arm, insert a 9/64" hex key through the appropriate mounting bracket *(see Figures 14 or 15)*. The hex key should protrude from the opposite side of the mounting bracket. If it does not, rotate the holder or arm until the key slides through the mounting bracket. While holding the bracket stationary, turn the holder or arm clockwise to increase the tension or counterclockwise to loosen the tension.

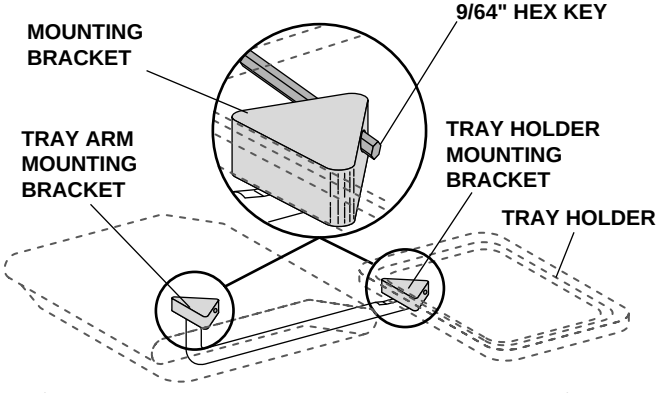


Figure 14. Tray Holder/Tray Arm Tension Adjustment (Continental-Style)

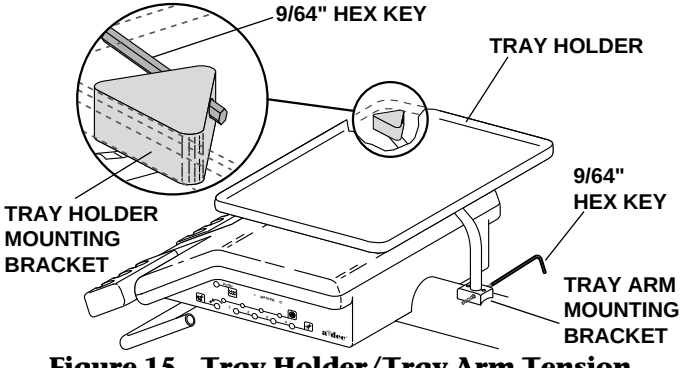


Figure 15. Tray Holder/Tray Arm Tension Adjustment (Traditional-Style)

Autoclavable Syringe

To operate the syringe *(see Figure 16):*

- Move the on/off toggle to the ON position.
- Air – Press the right button down.
- Water – Press the left button down.
- Spray – Press both buttons down.

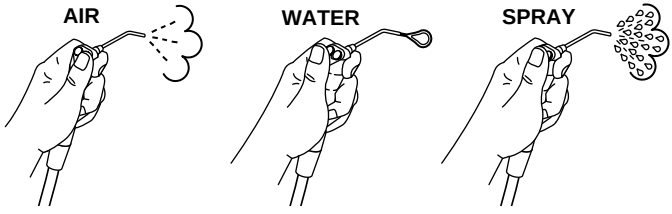


Figure 16. Autoclavable Syringe

Refer to your ***Autoclavable Syringe Owner's Guide*** *(A-dec Publication No. 85.0680.00)* for complete syringe operation and maintenance instructions.

System Air and Water Pressure Adjustment

For system air and water pressure adjustments, refer to your ***Floor Boxes Owner's Guide*** *(A-dec Publication No. 85.2611.00).*

Care Instructions

For recommended asepsis instructions, refer to your ***Equipment Asepsis Owner's Guide*** *(A-dec Publication No. 85.0696.00).*

For recommended self-contained water system care, refer to ***A-dec Self-contained Water System Owner's Guide*** *(A-dec Publication No. 85.0675.00).*

Flexible Arm

Cascade handpiece delivery systems are available on A-dec's flexible arm system. The flexible arm allows vertical and horizontal positioning of the control head to suit your practice.

Counterbalance Spring Adjustment

The flexible arm contains a spring that counterbalances the weight of the control head. The arm also contains a friction mechanism to stabilize the arm at the upper and lower extremes of its vertical arc.

If the arm tends to rise or drop when the arm brake is released, the counterbalance spring needs adjustment.

1. Remove the flexible vinyl cover from the underside of the arm *(see Figure 17)*. Gently pull the tubing and wiring in the arm slightly aside.

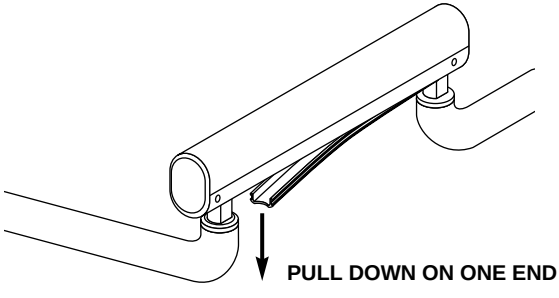


Figure 17. Flex Arm Cover

Counterbalance Spring Adjustment (continued)

2. Raise the control head end of the flex arm until the friction adjustment socket head screw is accessible through the access hole in the arm *(see Figure 18)*. Using a 5/32" hex key loosen, but do not remove, the friction adjustment screw.

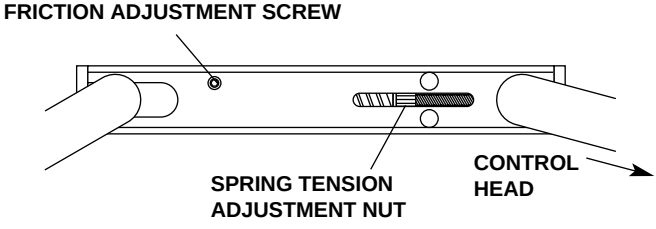


Figure 18. Tension Adjustment Locations

3. Lift the control end of the flex arm as high as possible while turning the adjustment nut, this relieves the spring tension allowing the nut to turn more easily.
   - If the arm tends to drop, turn the spring tension adjustment nut clockwise *(as viewed from the control head end of the arm, see Figure 19)*.
   - If the arm tends to rise, turn the adjustment nut counterclockwise.

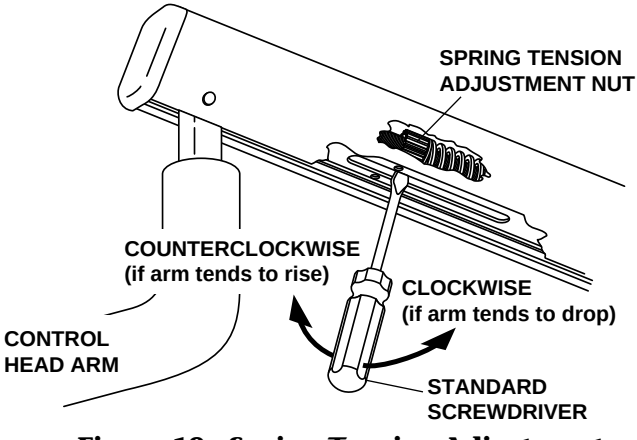

SPRING TENSION ADJUSTMENT NUT
COUNTERCLOCKWISE (if arm tends to rise)
CLOCKWISE (if arm tends to drop)
CONTROL HEAD ARM
STANDARD SCREWDRIVER

Figure 19. Spring Tension Adjustment

Products List | Print | Table of Contents

Counterbalance Spring Adjustment (continued)

4. While adjusting the spring tension, frequently move the arm through its vertical arc to see if it is adjusted properly.
5. When you are satisfied with the spring tension adjustment, move the arm alternately full up and then full down positions releasing the control head at each position. If the arm drops or rises when you let go of it in either position, tighten the friction adjustment. Be careful not to overtighten the adjustment as you may damage the friction mechanism.
6. Reinstall the flex vinyl cover *(see Figure 20)*. The cover is easily snapped back into place. Start by inserting one end of the cover into the arm and press it into place along the bottom of the arm.

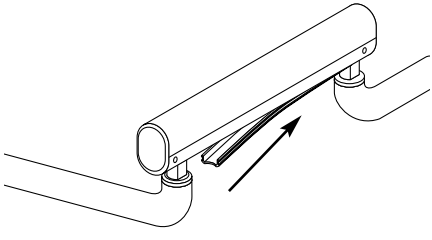


Figure 20. Install the Flex Arm Cover

Arm Stop Adjustment for Left/Right Conversion

Lift the cap between the rigid arm and flexible arm *(see Figure 21)*. Use a 3⁄32" hex key to remove the stop assembly. Rotate the flexible arm so the threaded hole is on the other side of the pin and reinstall the stop assembly.

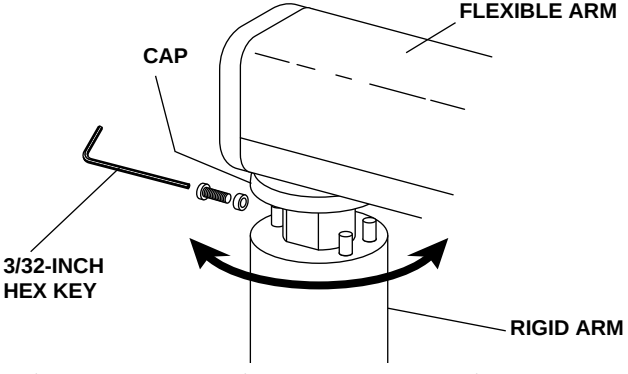


Figure 21. Flexible Arm Stop Adjustment

Lift the cover, at the base of the rigid arm, from the top of the post box *(see Figure 22)*. Use an 1⁄8" hex key to remove the stop assembly. Rotate the rigid arm so the threaded hole is in the opposite slot. Reinstall the stop assembly.

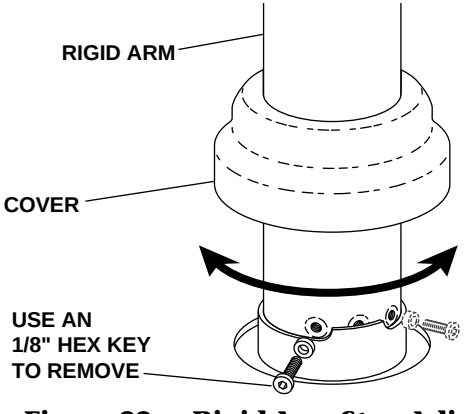


Figure 22. Rigid Arm Stop Adjustment

Products List | Print | Table of Contents

Continental-Style Control Positioning

A-dec's handpiece control and flexible arm system is designed to provide flexibility in positioning of the handpiece control.

The handpiece control and flexible arm system is configured for over-the-patient delivery at the factory.

Trans-Thorax Positioning

Refer to Figure 23 when converting the handpiece control and flexible arm system for trans-thorax positioning.

1. Lift the cap at the top of the control head arm.
2. Use needle nose pliers to remove one of the pins from the standard position and replace it in the hole nearest it. The pin moved will depend on if you are practicing right-hand or left-hand dentistry.

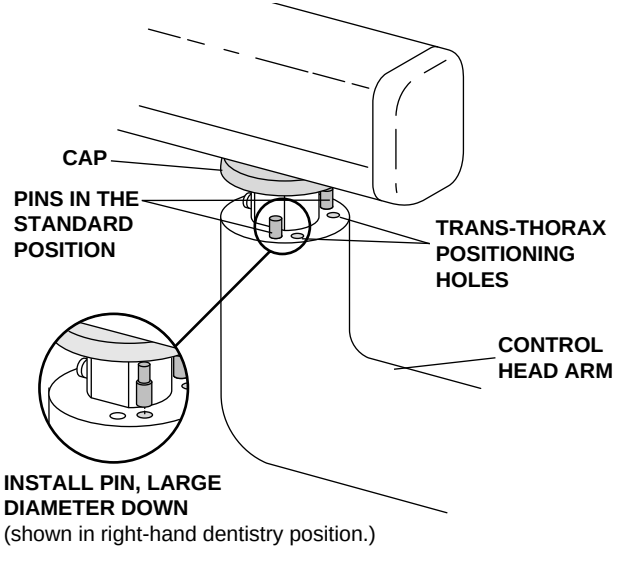


Figure 23. Trans-Thorax Positioning

Maintenance

Handpiece Tubing Flush .....page 8
Oil Collector .....page 10

Also refer to the following A-dec documentation for more maintenance information:

Autoclavable Syringe
Autoclavable Syringe Owner's Guide *.....85.0680.00*

Care Instructions
Equipment Asepsis Owner's Guide *.....85.0696.00*
Self-contained Water Owner's Guide *.....85.0675.00*

Power Supplies
Floor Box Owner's Guide *.....85.2611.00*

Adjustments and Specifications

Handpiece Controls
Drive Air Pressure .....page 5
(Refer also to your handpiece documentation for the manufacturer's maximum dynamic drive air pressure specification.)
Coolant Air Flow .....page 6
Coolant Water Flow .....page 7
Continental-Style Handpiece Whip .....page 10
Traditional-Style Handpiece Holder.....page 11

Flex Arm Adjustments
Counterbalance Spring.....page 15
Arm Stop for Left/Right Conversion .....page 18
Continental-Style Trans-Thorax Positioning.....page 19

Products List | Print | Table of Contents

Adjustments and Specifications (continued)

Also refer to the following A-dec documentation for more adjustment and specification information:

System Air and Water Pressure Adjustments

Floor Box
Owner's Guide *85.2611.00*

Touch Pad Programming

Cascade 1040 Chair
Owner's Guide *85.2605.00*

Decade 1011/1021 Chair
Owner's Guide *85.2635.00*

Master Touch Pad
Owner's Guide *85.2627.00*

Control Head Load Capacity:

10 lbs.(4.54 kg) – typical vertical load on tray to overcome the arm brake.

Weights of optional attachments:

Touch Pad: .5 lb (.23 kg)
Tooth Dryer: 1 lb (.45 kg)
Intra-Oral Light Sources: 1 lb (.45 kg)
Scaler: 2 lb (.91 kg)
Curing Light: 3 lb (1.36 kg)

Service Requirements for Unit Operation:

Minimum Air:
2.50 cfm (70.80 L/min) at 80 psi (551 kPa)
Minimum Water:
1.50 gpm (5.68 L/min) at 40 psi (276 kPa)
Minimum Vacuum:
12 cfm (339.84 L/min)
at 8 inches of mercury (27 kPa)

Any optional non-A-dec attachments and/or accessories must comply with EN 60601-1 and EN 60601-1-2.

Specifications are subject to change without notice.

Identification of Symbols

Recognized by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Recognized with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

UL listed to US (UL 544) and Canadian (CAN/CSA C22.2, No. 125) safety standards.

Classified by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Classified with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

Conforms to European Directives
(refer to Declaration Statement)

Protective earth (ground).

Functional earth (ground).

Attention, consult accompanying documents.

TYPE B APPLIED PART.

CLASS II EQUIPMENT.

Classification of Equipment (EN 60601-1)

Type of shock protection:
CLASS I EQUIPMENT
(Dental Chairs, Dental Lights, & Power Supplies)

CLASS II EQUIPMENT
(Chair, Wall, & Cart Mounted Delivery Systems)

Degree of shock protection:
TYPE B APPLIED PART (All products)

Degree of protection against water ingress:
ORDINARY EQUIPMENT (All products)

Mode of operation
CONTINUOUS OPERATION
(All models except Dental Chairs)

Mode of operation
CONTINUOUS OPERATION WITH
INTERMITTENT LOADING (Dental Chairs)

a-dec

2601 Crestview Drive
Newberg, Oregon 97132 U.S.A.
Telephone 1-800-547-1883
(503) 538-7478
Fax (503) 538-0276

a-dec
international, inc.

Designated Representative's Address:
A-dec Dental U.K., Ltd.
Austin House
11 Liberty Way
Attleborough Fields,
Nuneaton, Warwickshire,
England CV11 6RZ
Telephone: 00 44 24 7635 0901
Fax: 00 44 24 7634 5106

Designated Representative's Address:
A-dec Australia
41-43 Bowden Street
Alexandria, N.S.W. 2015, Australia
Telephone: (61) 1.800.225010

85.2639.00
1999-10
Rev A (01739)

Made with 50% waste paper

Printed in USA.
Copyright © 1999,
All Rights Reserved.